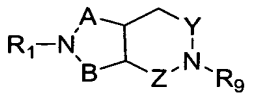
WE CLAIM:

1. A compound of formula I



I,

or pharmaceutically acceptable salts and prodrugs thereof, wherein

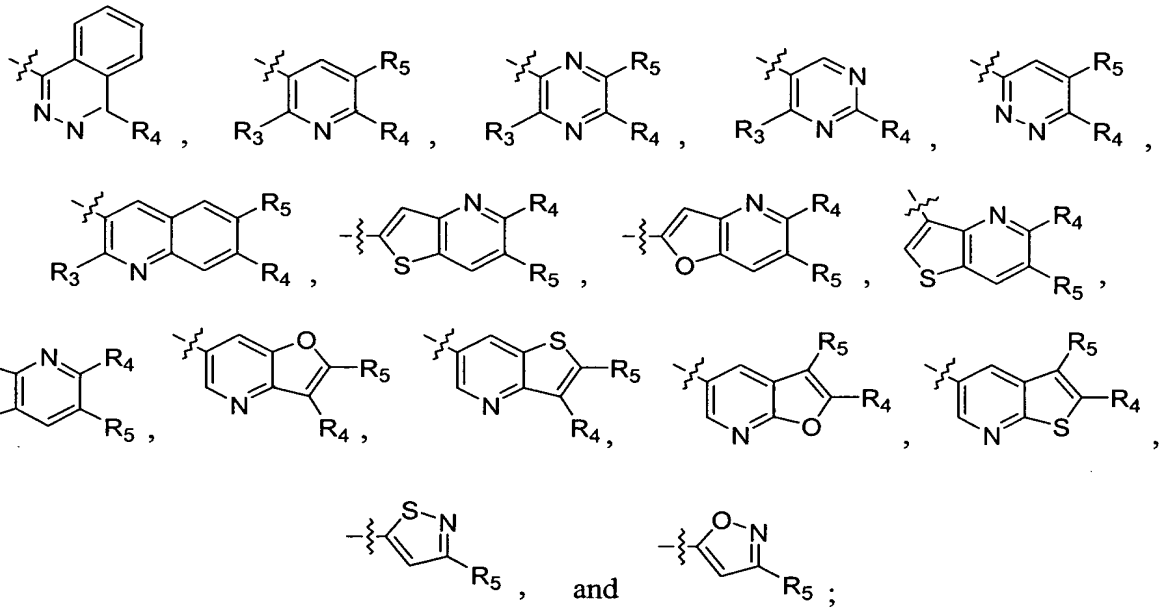
A is selected from the group consisting of a covalent bond, CH_2, CH_2CH_2, and $CH_2CH_2CH_2$;

B is selected from the group consisting of CH_2 and CH_2CH_2, provided thatwhen A is $CH_2CH_2CH_2$, then B is CH_2;

Y is selected from the group consisting of a covalent bond, CH_2, and CH_2CH_2;

Z is selected from the group consisting of a covalent bond, CH_2, and CH_2CH_2, provided that when Y is CH_2CH_2, then Z is a covalent bond and further provided that when Z is CH_2CH_2, then Y is a covalent bond;

R_1 is selected from the group consisting of



; and

;

R_3 is selected from the group consisting of hydrogen, alkyl, and halogen;

R_4 is selected from the group consisting of hydrogen, alkoxy, alkyl, amino, halogen, and nitro;

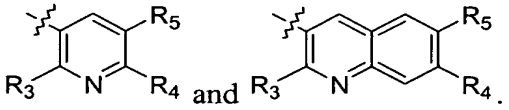
R_5 is selected from the group consisting of hydrogen, alkenyl, alkoxy, alkoxyalkoxy, alkoxyalkyl, alkoxycarbonyl, alkoxycarbonylalkyl, alkyl, alkylcarbonyl, alkylcarbonyloxy, alkylthio, alkynyl, amino, aminoalkyl, aminocarbonyl, aminocarbonylalkyl, aminosulfonyl, carboxy, carboxyalkyl, cyano, cyanoalkyl, formyl, formylalkyl, haloalkoxy, haloalkyl, halogen, hydroxy, hydroxyalkyl, mercapto, mercaptoalkyl, nitro, 5-tetrazolyl, $-NR_6S(O)_2R_7$, $-C(NR_6)NR_7R_8$, $-CH_2C(NR_6)NR_7R_8$, $-C(NOR_6)R_7$, $-C(NCN)R_6$, $-C(NNR_6R_7)R_8$, $-S(O)_2OR_6$, and $-S(O)_2R_6$;

R_6, R_7, and R_8 are independently selected from the group consisting of hydrogen and alkyl; and

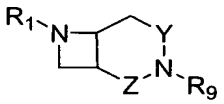
R_9 is selected from the group consisting of hydrogen, alkoxycarbonyl, alkyl, amino, aminoalkyl, aminocarbonylalkyl, benzyloxycarbonyl, cyanoalkyl, dihydro-3-pyridinylcarbonyl, hydroxy, hydroxyalkyl, and phenoxycarbonyl.

2. A compound according to claim 1 wherein

R_1 is selected from the group consisting of

 and .

3. A compound according to claim 1 of formula II



II,

or pharmaceutically acceptable salts and prodrugs thereof.

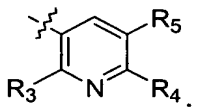
4. A compound according to claim 3 wherein Y is a covalent bond and Z is CH_2.

5. A compound according to claim 3 wherein

Y is a covalent bond;

Z is CH_2; and

R_1 is



6. A compound according to claim 5 selected from the group consisting of

(cis)-6-(3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(cis)-6-(6-chloro-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(1R,5S)-6-(3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(1R,5S)-6-(5-bromo-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(1S,5R)-6-(6-chloro-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(1S,5R)-6-(3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(1R,5S)-6-(6-chloro-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(1S,5R)-6-(5-ethynyl-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(1S,5R)-6-(5-vinyl-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

5-[(1S,5R)-3,6-diazabicyclo[3.2.0]hept-6-yl]nicotinonitrile;

(-) (cis)-6-(5-bromo-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(cis)-6-(5-bromo-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(1S,5R)-6-(6-bromo-5-vinyl-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

2-bromo-5-[(1R,5S)-3,6-diazabicyclo[3.2.0]hept-6-yl]nicotinonitrile;

(1R,5S)-6-(5-ethynyl-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(1R,5S)-6-(5,6-dichloro-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(1S,5R)-6-(5,6-dichloro-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(cis)-6-(5,6-dichloro-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(1R,5S)-6-(5-methoxy-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(1S,5R)-6-(5-methoxy-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(cis)-6-(6-bromo-5-methoxy-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

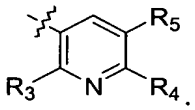
(1R,5S)-6-(6-chloro-5-methyl-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;

(1S,5R)-6-(6-chloro-5-methyl-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;
(cis)-6-(6-chloro-5-methyl-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;
(1R,5S)-6-(6-bromo-5-methoxy-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;
(1S,5R)-6-(6-bromo-5-methoxy-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;
(cis)-6-(5-azido-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;
(1R,5S)-6-(5-azido-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane; and
(1R,5S)-6-(5-azido-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane.

7. A compound according to claim 5 that is 5-[(1R,5S)-3,6-diazabicyclo[3.2.0]hept-6-yl]nicotinonitrile.

8. A compound according to claim 3 wherein Y is CH_2 and Z is a covalent bond.

9. A compound according to claim 3 wherein
Y is CH_2;
Z is a covalent bond; and
R_1 is



10. A compound according to claim 9 selected from the group consisting of
(1R,5R)-6-(6-chloro-3-pyridinyl)-2,6-diazabicyclo[3.2.0]heptane and
(1R,5R)-6-(3-pyridinyl)-2,6-diazabicyclo[3.2.0]heptane.

11. A compound according to claim 3 wherein Y is CH_2CH_2 and Z is a covalent bond.

12. A compound according to claim 3 wherein Y is CH_2 and Z is CH_2.

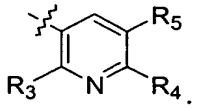
13. A compound according to claim 3 wherein Y is a covalent bond and Z is CH_2CH_2.

14. A compound according to claim 3 wherein

Y is a covalent bond;

Z is CH_2CH_2; and

R_1 is



15. A compound according to claim 14 selected from the group consisting of

(cis)-8-(3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane;

(cis)-8-(6-chloro-3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane;

(1S,6R)-(cis)-8-(6-chloro-3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane;

(-) (cis)-8-(6-chloro-3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane;

5-[(1R,6S)-3,8-diazabicyclo[4.2.0]oct-8-yl]nicotinonitrile;

(1S,6R)-5-[3,8-diazabicyclo[4.2.0]oct-8-yl]nicotinonitrile;

(1S,6R)-8-(5-methoxy-3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane;

(cis)-8-(5-methoxy-3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane;

(1R,6S)-8-(5-methoxy-3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane;

(cis)-8-(6-chloro-5-methyl-3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane;

(1S,6R)-8-(6-chloro-5-methyl-3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane;

(1R,6S)-8-(6-chloro-5-methyl-3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane;

(1S,6R)-8-(3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane;

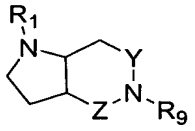
(1R,6S)-8-(3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane;

(cis)-8-(5,6-dichloro-3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane;

(1S,6R)-8-(5,6-dichloro-3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane; and

(1R,6S)-8-(5,6-dichloro-3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane.

16. A compound according to claim 1 of formula III



III,

or pharmaceutically acceptable salts and prodrugs thereof.

17. A compound according to claim 16 wherein

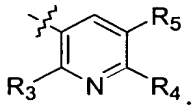
Y is a covalent bond and Z is a covalent bond.

18. A compound according to claim 16 wherein

Y is a covalent bond;

Z is a covalent bond; and

R_1 is



19. A compound according to claim 18 that is (1R,5R)-2-(3-pyridinyl)-2,6-diazabicyclo[3.2.0]heptane.

20. A compound according to claim 16 wherein Y is CH_2 and Z is a covalent bond.

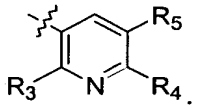
21. A compound according to claim 16 wherein Y is a covalent bond and Z is CH_2.

22. A compound according to claim 16 wherein

Y is a covalent bond;

Z is CH_2; and

R_1 is



23. A compound according to claim 22 selected from the group consisting of

(cis)-1-(6-chloro-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(cis)-1-(6-chloro-3-pyridinyl)-5-methyloctahydropyrrolo[3,4-b]pyrrole;

(3aR,6aR)-1-(6-chloro-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aR,6aR)-1-(3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aS,6aS)-1-(6-chloro-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aS,6aS)-1-(3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

5-((3aR,6aR)-hexahydropyrrolo[3,4-b]pyrrol-1(2H)-yl)nicotinonitrile;

(3aS,6aS)-1-(5-hydroxy-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole; and

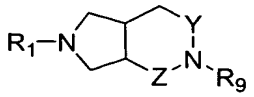
5-((3aS,6aS)-hexahydropyrrolo[3,4-b]pyrrol-1(2H)-yl)nicotinonitrile.

24. A compound according to claim 16 wherein Y is CH_2CH_2 and Z is a covalent bond.

25. A compound according to claim 16 wherein Y is CH_2 and Z is CH_2.

26. A compound according to claim 16 wherein Y is a covalent bond and Z is CH_2CH_2.

27. A compound according to claim 1 of formula IV

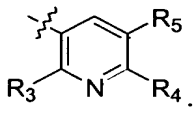


IV,

or pharmaceutically acceptable salts and prodrugs thereof.

28. A compound according to claim 27 wherein
Y is a covalent bond and Z is a covalent bond.

29. A compound according to claim 27 wherein
Y is a covalent bond;
Z is a covalent bond; and
R_1 is



30. A compound according to claim 29 selected from the group consisting of
(cis)-3-(3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;
(cis)-3-(6-chloro-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane;
5-[(1R,5R)-3,6-diazabicyclo[3.2.0]hept-3-yl]nicotinonitrile; and
(1R,5R)-3-(6-chloro-3-pyridinyl)-3,6-diazabicyclo[3.2.0]heptane.

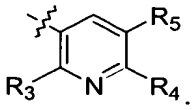
31. A compound according to claim 27 wherein Y is CH_2 and Z is a covalent bond.

32. A compound according to claim 27 wherein

Y is CH_2;

Z is a covalent bond; and

R_1 is



33. A compound according to claim 32 selected from the group consisting of

(cis)-5-(6-chloro-3-pyridinyl)octahydrpyrrolo[3,4-b]pyrrole;

(3aR,6aR)-5-(6-chloro-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aS,6aS)-5-(6-chloro-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aR,6aR)-5-(5,6-dichloro-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aS,6aS)-5-(5,6-dichloro-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aS,6aS)-5-(6-chloro-5-methyl-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aR,6aR)-5-(6-chloro-5-methyl-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aR,6aR)-5-(3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aR,6aR)-5-(5-methoxy-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aS,6aS)-5-(3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aS,6aS)-5-(5-bromo-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aS,6aS)-5-(5-methoxy-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aR,6aR)-5-(5-ethynyl-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aR,6aR)-5-(5-bromo-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

5-((3aR,6aR)-hexahydropyrrolo[3,4-b]pyrrol-5(1H)-yl)nicotinonitrile;

(3aR,6aR)-5-(6-bromo-5-methoxy-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

5-((3aR,6aR)-hexahydropyrrolo[3,4-b]pyrrol-5(1H)-yl)-2-bromonicotinonitrile;

(3aR,6aR)-5-(5-vinyl-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aR,6aR)-5-(5-methyl-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aR,6aR)-5-(6-bromo-5-chloro-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aR,6aR)-5-(6-bromo-5-methyl-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

(3aR,6aR)-5-(5-ethyl-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

[5-((3aR,6aR)-hexahydropyrrolo[3,4-b]pyrrol-5(1H)-yl)-2-bromo-3-pyridinyl]methanol;

(3aR,6aR)-5-(6-bromo-5-vinyl-3-pyridinyl)octahydropyrrolo[3,4-b]pyrrole;

[5-((3aR,6aR)-hexahydropyrrolo[3,4-b]pyrrol-5(1H)-yl)-2-bromo-3-pyridinyl]acetonitrile; and

(3aR,6aR)-5-[6-bromo-5-(methoxymethyl)-3-pyridinyl]octahydropyrrolo[3,4-b]pyrrole.

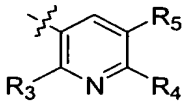
34. A compound according to claim 27 wherein Y is a covalent bond and Z is CH_2.

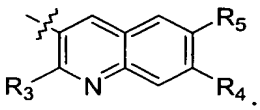
35. A compound according to claim 27 wherein

Y is a covalent bond;

Z is CH_2; and

R_1 is



and


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36. A compound according to claim 35 selected from the group consisting of

(cis)-2-(3-pyridinyl)octahydropyrrolo[3,4-c]pyrrole;

(cis)-2-methyl-5-(3-pyridinyl)octahydropyrrolo[3,4-c]pyrrole;

(cis)-2-(6-chloro-3-pyridinyl)octahydropyrrolo[3,4-c]pyrrole;

(cis)-2-(6-chloro-3-pyridinyl)-5-methyloctahydropyrrolo[3,4-c]pyrrole;

(cis)-2-(3-quinolinyl)octahydropyrrolo[3,4-c]pyrrole;

(cis)-2-(5-hydroxy-3-pyridinyl)octahydropyrrolo[3,4-c]pyrrole;

(cis)-2-(5-methoxy-3-pyridinyl)octahydropyrrolo[3,4-c]pyrrole;

(cis)-2-(5-ethoxy-3-pyridinyl)octahydropyrrolo[3,4-c]pyrrole;

(cis)-2-(5-propoxy-3-pyridinyl)octahydropyrrolo[3,4-c]pyrrole;

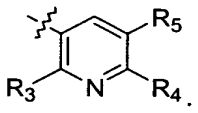
(cis)-2-(6-chloro-5-methoxy-3-pyridinyl)octahydropyrrolo[3,4-c]pyrrole;

(cis)-2-(6-chloro-5-methyl-3-pyridinyl)octahydropyrrolo[3,4-c]pyrrole; and

(cis)-2-[5-(2,2,2-trifluoroethoxy)-3-pyridinyl]octahydropyrrolo[3,4-c]pyrrole.

37. A compound according to claim 27 wherein Y is CH_2CH_2 and Z is a covalent bond.

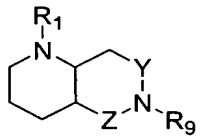
38. A compound according to claim 27 wherein
Y is CH_2CH_2;
Z is a covalent bond; and
R_1 is



39. A compound according to claim 38 selected from the group consisting of (cis)-6-(6-chloro-3-pyridinyl)octahydro-1H-pyrrolo[3,4-b]pyridine and (cis)-6-(3-pyridinyl)octahydro-1H-pyrrolo[3,4-b]pyridine.

40. A compound according to claim 27 wherein Y is CH_2 and Z is CH_2.

41. A compound according to claim 1 of formula V



V,

or pharmaceutically acceptable salts and prodrugs thereof.

42. A compound according to claim 41 wherein
Y is a covalent bond and Z is a covalent bond.

43. A compound according to claim 41 wherein Y is CH_2 and Z is a covalent bond.

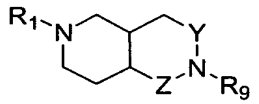
44. A compound according to claim 41 wherein Y is a covalent bond and Z is CH_2.

45. A compound according to claim 41 wherein Y is CH_2CH_2 and Z is a covalent bond.

46. A compound according to claim 41 wherein Y is CH_2 and Z is CH_2.

47. A compound according to claim 41 wherein Y is a covalent bond and Z is CH_2CH_2.

48. A compound according to claim 1 of formula VI



VI,

or pharmaceutically acceptable salts and prodrugs thereof.

49. A compound according to claim 48 wherein
Y is a covalent bond and Z is a covalent bond.

50. A compound according to claim 48 wherein Y is CH_2 and Z is a covalent bond.

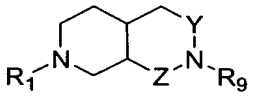
51. A compound according to claim 48 wherein Y is a covalent bond and Z is CH_2.

52. A compound according to claim 48 wherein Y is CH_2CH_2 and Z is a covalent bond.

53. A compound according to claim 48 wherein Y is CH_2 and Z is CH_2.

54. A compound according to claim 48 wherein Y is a covalent bond and Z is CH_2CH_2.

55. A compound according to claim 1 of formula VII

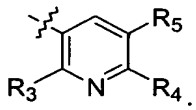


VII,

or pharmaceutically acceptable salts and prodrugs thereof.

56. A compound according to claim 55 wherein
Y is a covalent bond and Z is a covalent bond.

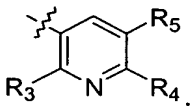
57. A compound according to claim 55 wherein
Y is a covalent bond;
Z is a covalent bond; and
R_1 is



58. A compound according to claim 57 selected from the group consisting of
(cis)-3-(3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane;
(cis)-3-(6-chloro-3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane;
(1R,6S)-3-(6-chloro-3-pyridinyl)-3,8-diazabicyclo[4.2.0]octane; and
(cis)-5-[3,8-diazabicyclo[4.2.0]oct-3-yl]nicotinonitrile.

59. A compound according to claim 55 wherein Y is CH_2 and Z is a covalent bond.

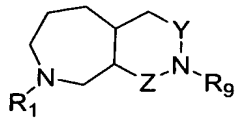
60. A compound according to claim 55 wherein
Y is a covalent bond;
Z is a covalent bond; and
R_1 is



61. A compound according to claim 60 that is (cis)-6-(3-pyridinyl)octahydro-1H-pyrrolo[2,3-c]pyridine.

62. A compound according to claim 55 wherein Y is CH_2CH_2 and Z is a covalent bond.

63. A compound according to claim 1 of formula VIII



VIII,

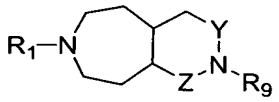
or pharmaceutically acceptable salts and prodrugs thereof.

64. A compound according to claim 63 wherein
Y is a covalent bond and Z is a covalent bond.

65. A compound according to claim 63 wherein Y is CH_2 and Z is a covalent bond.

66. A compound according to claim 63 wherein Y is a covalent bond and Z is CH_2.

67. A compound according to claim 1 of formula IX



IX,

or pharmaceutically acceptable salts and prodrugs thereof.

68. A compound according to claim 67 wherein
Y is a covalent bond and Z is a covalent bond.

69. A compound according to claim 67 wherein Y is CH_2 and Z is a covalent bond.

70. A compound according to claim 67 wherein Y is a covalent bond and Z is CH_2.

71. A pharmaceutical composition comprising a therapeutically effective amount of a compound of Claim 1 in combination with a pharmaceutically acceptable carrier.

72. A method for selectively controlling neurotransmitter release in a mammal comprising administering to a mammal in need of such treatment a therapeutically effective amount of a compound of Claim 1.

73. A method of treating a disorder wherein the disorder is ameliorated by controlling neurotransmitter release in a host mammal in need of such treatment comprising administering a therapeutically effective amount of a compound of Claim 1.

74. The method of claim 73 wherein the disorder is selected from the group consisting of Alzheimer's disease, Parkinson's disease, attention deficit hyperactivity disorder, depression, nicotinic withdrawal syndrome, Tourette's syndrome, and schizophrenia.

75. The method of claim 73 wherein the disorder is pain.

76. A method of treating pain in a mammal comprising administering to a mammal in need of such treatment a therapeutically effective amount of a compound of Claim 1 in combination with a non-steroid anti-inflammatory agent and a pharmaceutically acceptable carrier.

77. A method of treating pain in a mammal comprising administering to a mammal in need of such treatment a therapeutically effective amount of a compound of Claim 1 in combination with an opioid and a pharmaceutically acceptable carrier.

78. A method of treating pain in a mammal comprising administering to a mammal in need of such treatment a therapeutically effective amount of a compound of Claim 1 in combination with a tricyclic antidepressant and a pharmaceutically acceptable carrier.

79. A method of treating pain in a mammal comprising administering to a mammal in need of such treatment a therapeutically effective amount of a compound of Claim 1 in combination with an anticonvulsant and a pharmaceutically acceptable carrier.